

Cintia Carla Niva

Embrapa Cerrados



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Enchytraeids in two phytophysiognomies of Brazilian Cerrado

Cintia Carla Niva^{1*}, Robélio Leandro Marchão¹, Karina Pulrolnik¹,
Douglas Alexandre², Juaci Vitoria Malaquias¹, Dgessica Rayanne
Francis de O. Alcantara³, André Elias Cavalcanti Bezerra Guedes⁴,
Natalia Durães⁵, Rüdiger Maria Schmelz⁶

¹ Embrapa, cintia.niva@embrapa.br, Brasilia-DF, Brazil

² Universidade do Estado de Santa Catarina, UDESC, Lages-SC, Brazil

³ União Pioneira da Integração Social - UPIS, Brasilia-DF, Brazil

⁴ Instituto Federal de Brasilia - IFB, Brasilia-DF, Brazil

⁵ CNPq and Universidade de Brasilia - UnB, Brasilia-DF, Brazil

⁶ Universidad of A Coruña, A Coruña, Spain



Cerrado Biome

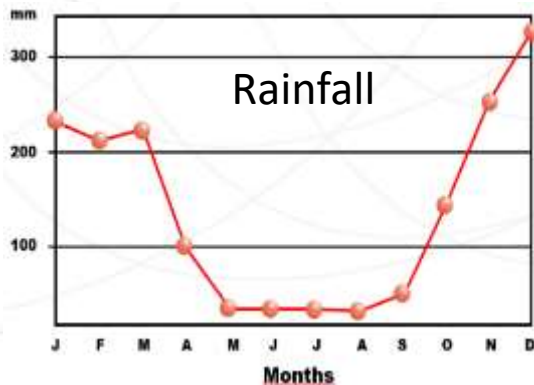
5% of Planet's Biodiversity - High endemism

(Myers et al 2000; WWF-Brasil 2015)

Soil animals in the planet (23% of the described living beings),

(Decaens et al., 2006)

still largely unknown in Cerrado



Soils highly weathered

Low pH

High Al content

Low fertility



Cerrado (total area): 204 M ha

Native area 53 %

Cultivated pasture 31 %

Crops 13 %

Planted forest 1,6%

Mapbiomas.org (2019)

Soil biodiversity loss?
Impacts on soil fauna?





Enchytraeids are small
oligochaete annelids present
worldwide known to be
sensitive to soil conditions

High densities of
enchytraeids reported in
Cerrado (TSBF), but genus/
species composition
unknown

Objective

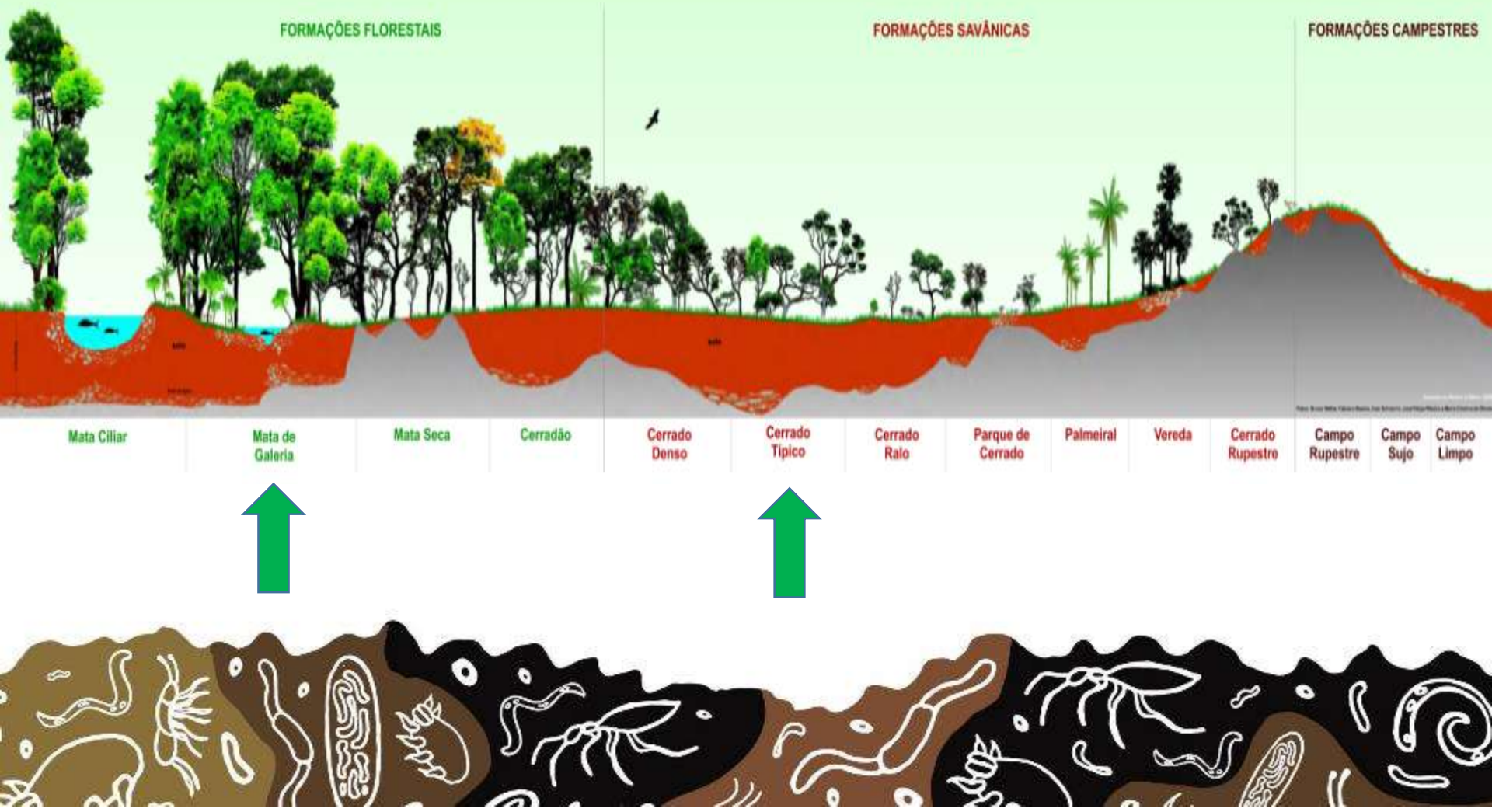
- Determine Enchytraeidae density and generic composition in two phytophysiognomies of Cerrado Biome to support the use of these organisms to the monitoring of soil biological quality, soil biodiversity loss and sustainability of production systems



Material and methods

Cerrado phytophysiognomies

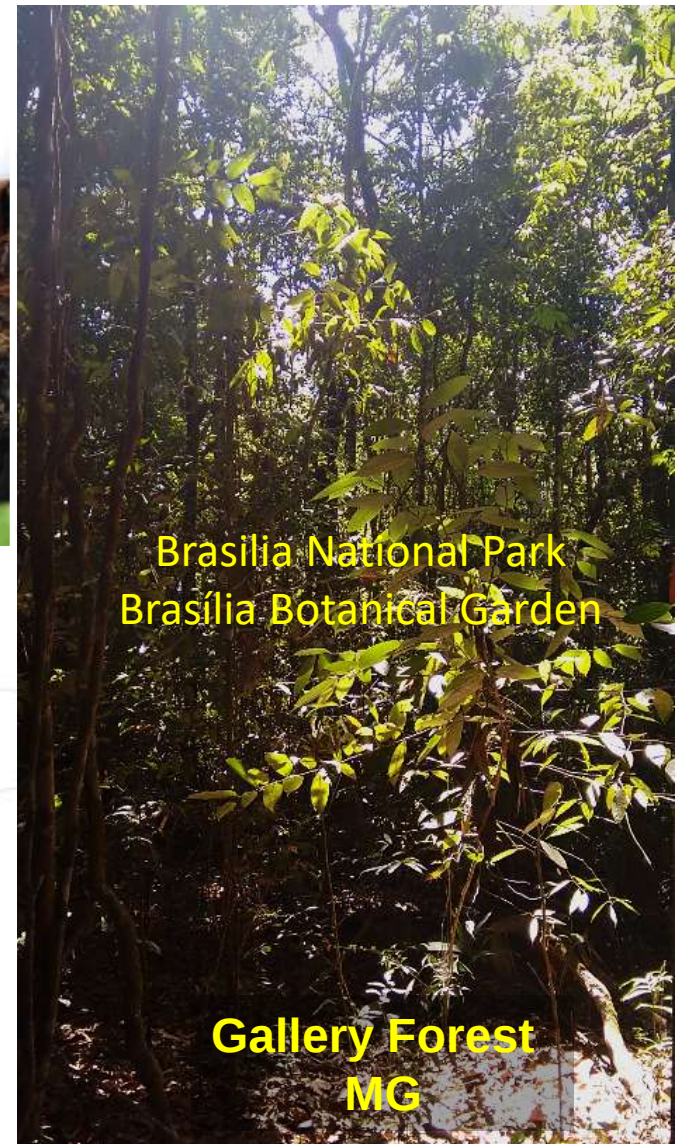
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Material and methods



SAMPLING:
end of rainy season
2017/ 2018



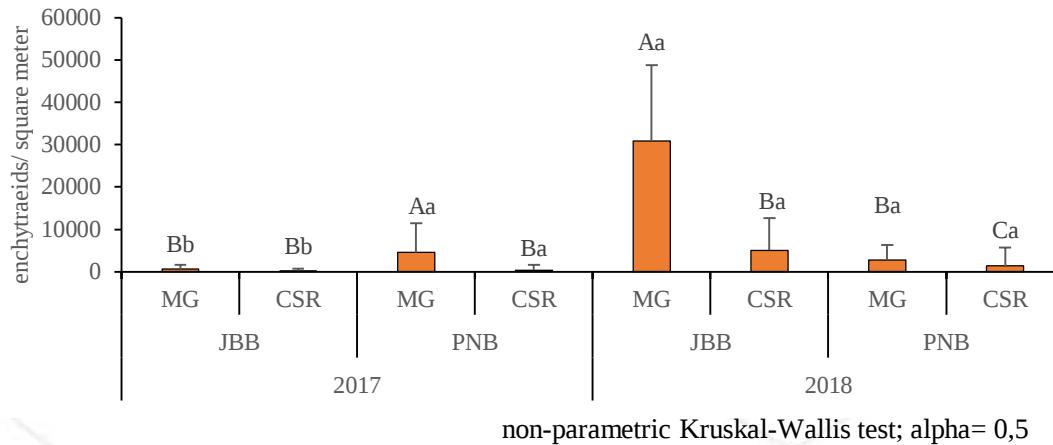
Material and methods



(ISO 23611-3/ 2007; Niva et al., 2015)



Results and discussion



Rainy season

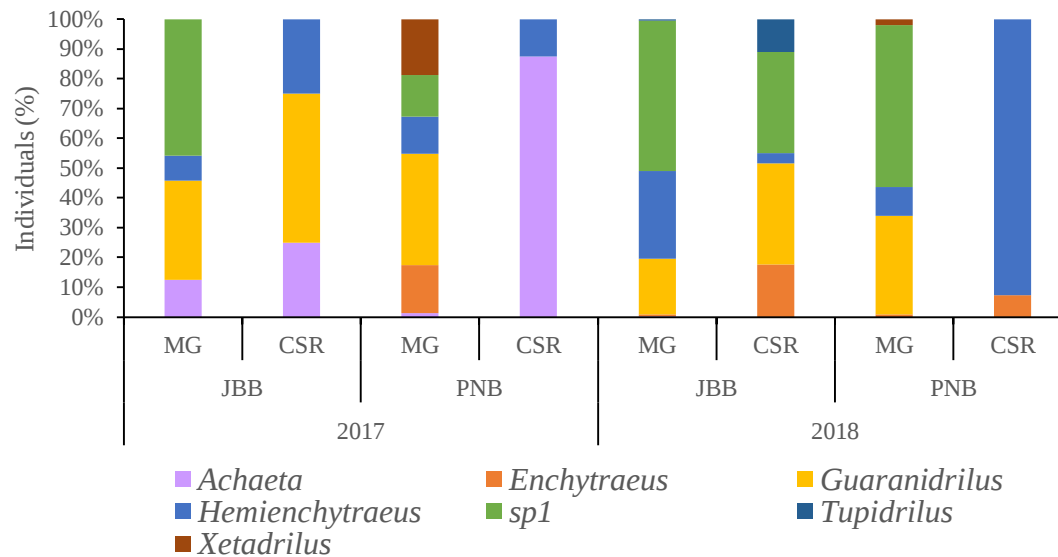
MG ~ 30,000 ind/m²

CSR ~ 5,000 ind/m²

Dry season

MG < 1 ind/m²

CSR ~ 0 ind/m²

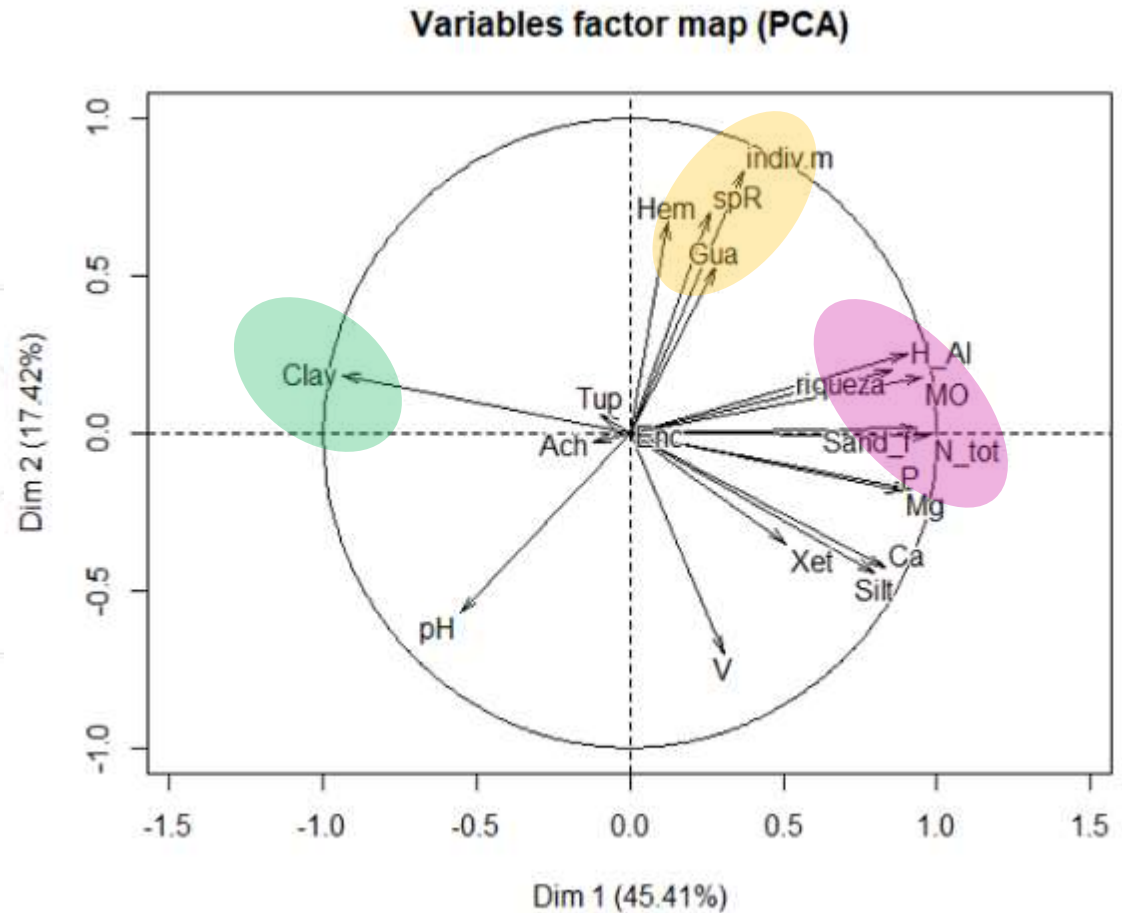
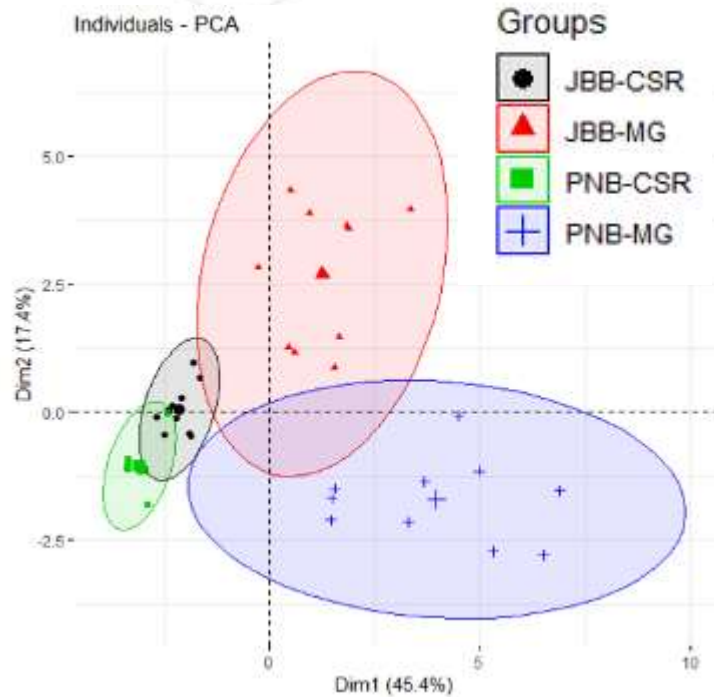


6 known genera found

Predominant: *Guaranidrilus*,
Hemienchytraeus, *spR*



Results and discussion



Results and discussion



World ~ 710 species (33 genera)

Latin America 62 species (15 genera)

- 45 (32 BR) native
- 17 non-native

Identified species:

Xetadrilus pitucus (Righi, 1974)

Achaeta neotropica (Černosvitov, 1937)

Guaranidrilus – 5 spp (1 genus?)

Hemienchytraeus – 1 sp

Genera in L.A.

Achaeta

Enchytraeus

Fridericia

Guaranidrilus

Hemienchytraeus

Marionina

Tupidrilus

Xetadrilus

Cognettia

Pelmatodrilus

Aspidodrilus

Henlea

Buchholzia

Lumbricilus

Mesenchytraeus

Schmelz et al., 2013;

Schmelz & Collado, 2015



Conclusions

- Cerrado biome harbors enchytraeids at mean densities up to 30 thousand ind/m² but numbers are variable
- Six known enchytraeid genera were found. Together with a potentially new genus, *Guaranidrilus* and *Hemienchytraeus* are the three most abundant taxa in Gallery Forest and Cerrado Sensu Stricto.
- Six species (5 *Guaranidrilus* spp and 1 *Hemienchytraeus* sp) are probably new to science.





Thank you for your attention

cintia.niva@embrapa.br



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